Programme Effectiveness within Public-Private Partnerships

An Analysis of Programme Management Strategy Effectiveness in the Schiphol-Amsterdam-Almere Infrastructure Programme

Author: Jochem Posthumus   **Date:** 17-06-2022   **Supervisor:** Dr. S. Verweij

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Author: S.J. (Jochem) Posthumus (S4151399)
Contact: s.j.posthumus.1@student.rug.nl

University: Rijksuniversiteit Groningen, Faculty of Spatial Sciences
Supervisor: Dr. S. (Stefan) Verweij
Second reader: E.A.J. (Bert) de Groot

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Abstract

In the Netherlands, a sharp increase in the number of infrastructure programmes occurred. The Schiphol-Amsterdam-Almere infrastructure programme consists of five projects, of which four with Public-Private-Partnerships contracts. This programme is one of the largest Dutch infrastructure programmes in history. Discovering how infrastructure programmes can effectively be managed can improve the effectiveness of future programmes. This paper therefore aims to contribute to more effective programme management. This is done through analysing programme management strategies and the underlying mechanisms behind their effectiveness. Nine semi-structured interviews with project- and programme managers in the SAA programme were conducted. This research found that a collection of strategies is utilised in order to effectively contribute to the overarching programme goals of accessibility and liveability. Effectiveness of strategies results especially from their collaborative effects. Thereby, outcomes are developed that allow for achieving the programme goals. Future programme managers can use insights gained on mechanisms behind strategy effectiveness to create effective PPP infrastructure programmes.

Keywords: programme management; programme management strategies; effectiveness; goal-achievement; project management; stakeholder management; public-private partnership.

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1. Introduction

In the Netherlands, spatial and infrastructure planning have faced a sharp increase in the number of programmes (Busscher, 2014). An example of an infrastructure programme is the Schiphol-Amsterdam-Almere (SAA) programme from Rijkswaterstaat, consisting of five large infrastructure projects. One project has a Design & Construct (D&C) contract. The remaining four projects have DBFM-contracts, a form of public-private partnership (PPP) (Bouwregienetwerk, 2022). PPP is a government organisation and private party arranging a service through a contractual agreement, where the private party bears the risk and management responsibilities (Roehrich et al., 2014; World Bank Institute, 2012). DBFM-contracts integrate the *Design*, *Build*, *Finance*, and *Maintain* phases, aiming to minimise life-cycle costs (Koppenjan et al., 2020).

Since infrastructure projects are elements of a larger transportation system, they are interdependent and interlinked. Therefore, they also need to be managed as such (Sussman et al., 2005). Simultaneous management of such interrelated projects - programme-oriented planning approaches - can deliver synergetic benefits that cannot be obtained with independent project implementation (Busscher, 2014). Whereas projects aim to achieve outputs or specified deliverables, programmes focus on outcomes or desired end states (e.g. a properly functioning infrastructure network). Although programme management emerged from project management, it developed into its own discipline, including theories and techniques (Pellegrinelli, 2011). Programme management can be defined as integrating and managing a group of projects that relate, aiming to achieve benefits that cannot be obtained through independent management (Lycett et al., 2004).

Busscher (2014) states that programme management literature is naturally highly instructive. Further, the underlying assumption is that programme management is a 'one-size-fits-all approach'. Basically, it is thought that following the manual provided by the literature, taking the predefined steps and accounting for critical success factors leads to successful programme delivery. However, the context of programmes is important, thus it is useful to pay more attention to the relationship between the context and programme-oriented strategies and techniques (Busscher, 2014). Specifically, dealing with variable dynamics and contexts is difficult. Consequently, the challenge of dealing with this variability is to balance robustness and flexibility of programme management approaches (Davies and Mackenzie, 2014; Sanderson, 2012). The SAA programme allows for an assessment of programme management in the context of PPPs (specifically DBFM-contracts). DBFM-contracts have rather rigid frameworks, resulting in optimisation within project boundaries (cf. inward focus) (Lenferink, 2013). Particularly, it is interesting to find out how programme management is performed when projects intrinsically have an inward focus.

Programmes are frequently treated as simply adding up several projects within Rijkswaterstaat, rather than using a programme-oriented approach. Additionally, no clear distinction is made between steering multi-projects and programmes (Kempenaar, 2016). Overarchingly, Rijkswaterstaat strives for creation of societal added value and to provide the public with accessible and safe road infrastructure networks (Rijkswaterstaat, 2015, n.d.). Hence, investigating how programme management can be done most effectively is essential. Eventually, this research can facilitate involved people to effectively manage future infrastructure programmes at Rijkswaterstaat.

Consequently, the aim of this research is to contribute to effective programme management in the specific context of PPPs. The Schiphol-Amsterdam-Almere (SAA) programme is used as a case. The programme intends to improve the accessibility and liveability in the north-western part of the Randstad (Ruijter, 2019). The SAA programme is currently the largest road infrastructure programme in the Netherlands ("Bezoekerscentrum Schiphol-Amsterdam-Almere," n.d.). Hence, for future programmes it is essential to learn from the effectiveness of the executed programme management. The main research question is formulated as follows:

What explains how programme management strategies are effective in the SAA programme?

To answer this question, the following sub-questions will be answered:

1) Which programme management strategies are used in SAA?
2) Which programme management strategies are effective in SAA?
3) What are mechanisms that explain effectiveness of programme management strategies in SAA?

Subsequently, the following sub-question will be answered to formulate advice regarding effective programme management for future programmes consisting of PPPs:

4) What strategies can Rijkswaterstaat effectively use in future PPP road infrastructure programmes?

In the following section, theoretical underpinnings for the research questions will be provided. Thereafter, section three discusses the methodology and the research design. Subsequently, in section four the results of this study will be presented. The final section provides the conclusions and recommendations for future research, as well as a discussion of the results of this study.

2. Theoretical framework

2.1 Measuring effective programme management

This study investigates what explains the effectiveness of programme management strategies. An approach to measure effectiveness is the 'goal approach', in which effectiveness is defined in terms of the extent of goal-achievement (Price, 1972). When an organisation achieves its goals to a greater extent, the effectiveness is greater. Since effectiveness is related to goal-achievement, the definition of goal is crucial, Price (1972) argues. This paper uses the fundamental programme management goals defined in the widely cited paper by Lycett et al. (2004). These goals are subdivided into two categories: *efficiency and effectiveness goals* and *business focus goals* (Table 1). The former goal category concerns improving management efficiency and effectiveness, whereas the second goal category relates to project and programme definition. Programme management approaches should address both categories, otherwise the programme value will diffuse (Lycett et al., 2004).

Multiple authors discuss general factors relating to programme success. For instance, Reiss et al. (2006) and Shehu and Akintoye (2009) list factors critical for effective and successful programme management. Furthermore, Lycett et al. (2004) state that effective programme management is relationship-based, should be dynamic and flexible, and able to adapt to changing contexts. Shao et al. (2012) developed a programme success construct, comprising of four dimensions of programme success: delivery capability, organisational capability, marketing capability and innovative capability. Delivery capability relates most to tangible benefits, whereas more intangible programme benefits are measured by the other three dimensions (Shao et al., 2012). Regarding these benefits, the Office of Government Commerce and the Project Management Institute advocate for programme success evaluation by looking at realisation of benefits (OGC, 2009; PMI, 2013).

Best Management Practice (BMP, 2011) defines programme management as "*the action of carrying out the coordinated organisation, direction and implementation of a dossier of projects and transformation activities (i.e. the programme) to achieve outcomes and realise benefits of strategic importance to the business*" (BMP, 2011, p.6). Whereas projects deal with outputs, programmes deal with outcomes. Outcomes are a result of change, which usually affect real world behaviour or circumstances. Activities undertaken to effect change result in the achievement of outcomes. Resulting from an outcome, benefits are the measurable improvements which can be perceived advantageous by stakeholders, as well as contributing towards one or more organisational objectives. Benefits accomplished in the early stages of the programme delivers funds, personnel, resources, and justifications to pursue benefits in later stages. Until the realisation of all benefits and achievement of programme objectives, this process continues (OGC, 2007).

Programme effectiveness can be measured in time, cost and performance (Shao et al., 2012). In some cases, this is complemented with stakeholder, user and programme management team satisfaction. Opposed to this more traditional measurement approach, more recently programme management literature became more focused on strategic orientation, involving effectiveness measurements regarding the organisation itself (Shao et al., 2012). However, Rijke et al. (2014) use programme success measured by the more traditional approach, focusing on budget, time, quality and stakeholder satisfaction. To measure effectiveness, this study utilises the goal approach mentioned by Price (1972), by comparing whether the outcomes and benefits of programme management strategies comply with the programme management goals (i.e. whether goals are achieved). The following section discusses programme management strategies, particularly relating to the effectiveness factors used by Rijke et al. (2014).

Goal	Description
Efficiency and effectiveness goals	
Improved coordination	Assist in identification and definition of project interdependencies and thereby reduce the incidence of work backlogs, rework and delays
Improved dependency management	Reduce the amount of re-engineering required due to inadequate management of the interfaces between projects
More effective resource utilisation	Improve the effectiveness and efficiency of the allocation of shared resources Assist in providing justification for specialist resources that deliver an overall improvement to programme delivery and/or business operations
More effective knowledge transfer	Provide a means to identify and improve upon transferable lessons. Facilitate organisational learning
Greater senior management 'visibility'	Enable senior management to better monitor, direct and control the implementation process
Business focus goals	
More coherent communication	Improve communication of overall goals and direction both internally and externally to the programme Target management attention clearly on the realisation of benefits that are defined and understood at the outset and achieved through the lifetime of the programme and beyond Assist in keeping personal agendas in check
Improved project definition	Ensure that project definition is more systematic and objective, thereby reducing the prevalence of projects with a high risk of failure or obsolescence Enable either the unbundling of activities in a strategic project-set into specific projects or Enable the bundling of related projects together to create a greater leverage or achieve economies of scale
Better alignment with business drivers, goals and strategy	Improves the linkage between the strategic direction of organisations and the management activities required to achieve these strategic objectives Provide an enabling framework for the realisation of strategic change and the ongoing alignment of strategy and projects in response to a changing business environment (via project addition/culling, etc.)

Table 1: Programme management goals, divided into goal categories. Source: Lycett et al. (2004); Pellegrinelli (1997); OGC (1999); McElroy (1996); Grundy (1998).

2.2 Programme management strategies

A strategy is an approach or line that is taken for achieving long-term aims. Programme management strategies explain why and how outcomes and benefits will be achieved through the programme approach, and therefore contain the programme approach (BMP, 2011). The Managing Successful Programmes approach (BMP, 2011), an approach that is often used in the Netherlands, describes programme management strategies and their delivery mechanisms (Appendix A). Multiple strategies in Appendix A (e.g. resource management and stakeholder engagement) reflect the traditional measurement approach mentioned by Shao et al. (2012). This study adopts this approach by focusing on the strategies regarding project management and stakeholder management, which contain the budget, time, quality and stakeholder aspects. Project and stakeholder management are briefly explained below.

2.2.1 Project management

The most widely-accepted definition of project management by the Project Management Institute (PMI, 2008) involves meeting project requirements through applying knowledge, skills, tools and techniques to project activities (Marcelino-Sádaba et al., 2015). Various methods to manage projects effectively exist (Jovanovic and Beric, 2018). An example is the PMI methodology (PMI, 2013). This study focuses on the aspects time management, cost management, quality management, risk management, and information management from this methodology.

2.2.2 Stakeholder management

Programme stakeholders are individuals, groups or organisations that can affect, be affected by, or perceive themselves affected by programmes (BMP, 2011). Managing the relationships between stakeholders and the organisation are concerns that relate to stakeholder management (Chinyio and Olomolaiye, 2009). Implementation of stakeholder management is usually done through the following steps: (1) identification, (2) analysis, (3) issues and (4) engagement (El-Gohary et al., 2006). Managing Successful Programmes adopts a similar approach for stakeholder engagement strategy (BMP, 2011). According to Das et al. (2022), it is essential for infrastructure projects to understand the concepts of stakeholder management and involvement to be successful.

2.3 Conceptual model

Figure 1 shows the relationship between the main concepts of this study in the context of the research questions.
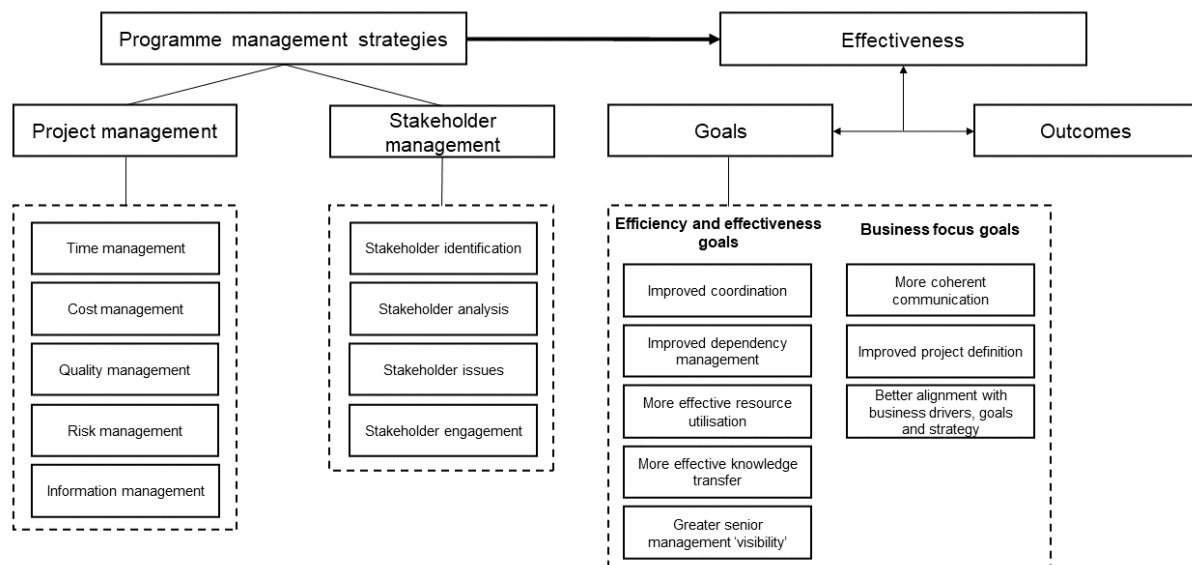

Figure 1: Conceptual model.

There is little research available focusing specifically on what explains effectiveness of strategies in programme management. Attention is given to development of critical factors for programme success (e.g. Reiss et al., 2006; Shehu and Akintoye, 2009), which is in line with the one-size-fits-all approach referred to by Busscher (2014). This paper addresses Busscher's (2014) call for more attention to the contingent relationship between programme strategies and programme contexts. Therefore, this research adds to the literature by diving deeper into explanatory factors for programme management strategy effectiveness, while investigating further programme-context relationships.

3. Methodology

3.1 The Schiphol-Amsterdam-Almere programme

To further illustrate the programme, the five project trajectories of the SAA programme are visualised in Figure 2. In addition, an overview of the D&C contract and the DBFM-contracts constituting the SAA programme is provided in Table 2.
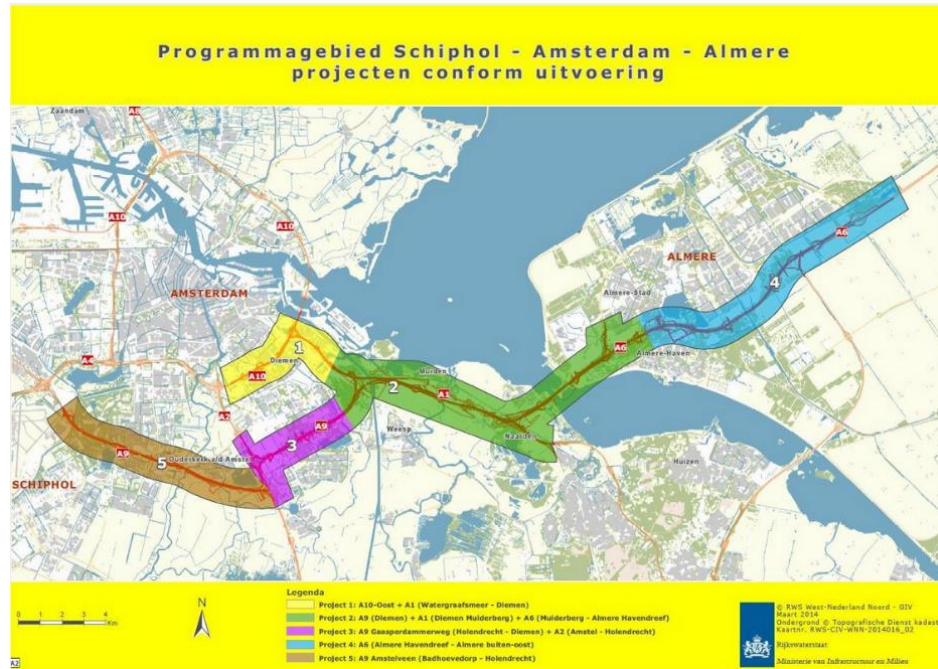

Figure 2: Overview of road infrastructure programme Schiphol-Amsterdam-Almere. Source: (Ruijter, 2019)

Project name	Type	Contract Close / Financial close	Availability date (AD)	Contract duration from AD	Consortium	Capital Expenditure (mln.)
1) A10 Oost/A1 Diemen (D&C)	Road	2011	2014	-	Combinatie Cadicom (Dura Vermeer Divisie Infra, Besix SA België, Cofely Energy & Infra)	100-250
2) A1/A6 (DBFM)	Road	2012/2013	2017	25 years	SAAone (VolkerWessels, Boskalis, Hochtief, DIF)	>500
3) A9 Gaasperdammerweg (DBFM)	Road Tunnel	2014	2018	20 years	IXAS (Ballast Nedam, Fluor, Heijmans, 3i)	>500
4) A6 Almere (DBFM)	Road	2016	2020	20 years	Parkway6 (Dura Vermeer, Besix, RebelValley, John Laing)	100-250
5) A9 Badhoevedorp – Holendrecht (DBFM)	Road	2019	Planned: 2026	14 years	VEENIX (FCC, Siemens, Macquarie, Count&Cooper)	>500

Table 2: Overview of projects and contracts of the SAA programme. Sources: Infrasite (2011), Koppenjan et al. (2020)

3.2 Sampling and data collection

A preliminary interview was conducted with a SAA employee in order to narrow the research scope and discuss how data could be collected effectively. Since this research focuses on finding underlying explanatory mechanisms, qualitative data collection through interviews was chosen to be able to delve deeper into these mechanisms compared to quantitative data collection. Nine semi-structured interviews were conducted to answer the research questions. In Figure 3, a schematic overview of the programme organisation in SAA is provided.
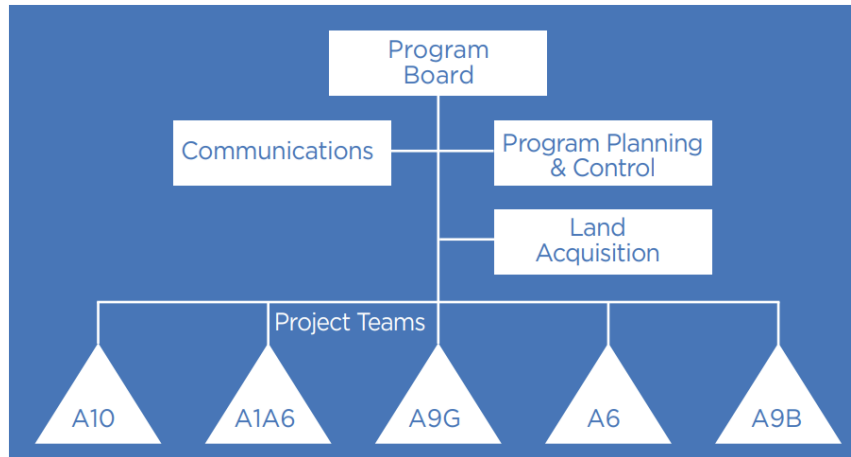

Figure 3: Schematic overview of the SAA programme organisation. Source: Ruijter (2019)

The programme board (Figure 3) was interviewed, consisting of the programme director, the portfolio manager strategy and communication and the portfolio manager business operations. Additionally, the Project Team 'A9 Badhoevedorp-Holendrecht' (A9B) was interviewed, as this was the only active project during the study. The Integral Project Management (IPM) team – usually containing five managers as visualised in Figure 4 – was interviewed. However, a sixth information provision manager (IV manager) is involved in the A9B IPM team, responsible for the management of all electronics in the project (e.g. sensors, street lighting). The assistant of this manager was interviewed since sufficient time to properly interview the IV manager could not be found.
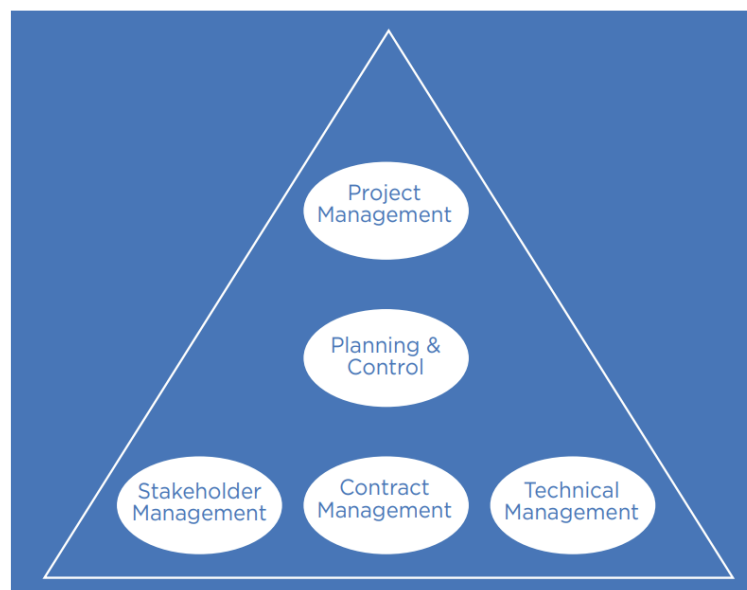

Figure 4: The Integral Project Management (IPM) Model. Source: Ruijter (2019)

Several interviewees indicated they have experience with other projects within the SAA programme. Interviewing the programme board and the A9B IPM team therefore provides a complete overview of the SAA programme. The collected data is based on various perspectives, providing a diverse dataset allowing for the selection of most important and qualitative results. Since the interviewees have differing functions and experiences, semi-structured interviews offered the flexibility to adjust to the varying perspectives of the interviewees. Moreover, this also allowed for slight adjustments in the interview strategy (see Section 4.1). In Table 3, an overview of the interviews and their characteristics is shown. The interview guide can be found in Appendix B.

Interviewee	Abbreviation	Interview date	Interview location	Interview duration
Stakeholder manager A9B	SM	15-04-2022	Online	77 min
Technical manager A9B	TM	20-04-2022	Online	54 min
Assistant manager IV A9B	IM	21-04-2022	Online	60 min
Manager planning and control A9B	PC	21-04-2022	Online	54 min
Project manager A9B	PM	22-04-2022	Online	39 min
Contract manager A9B	CM	25-04-2022	Online	39 min
Portfolio manager strategy and communication	SC	04-05-2022	In person	70 min
Portfolio manager business operations	BO	04-05-2022	In person	52 min
Programme director	PD	11-05-2022	Online	43 min

Table 3: Overview of conducted interviews.

3.3 Data analysis method

The interviews were conducted in Dutch, to allow the interviewees to feel most comfortable talking about their experiences. The interviews were recorded and transcribed, and thereafter relevant information was marked with codes by using Atlas.ti (see the coding scheme in Appendix C). Per interviewee, a table is created which summarises the mentioned goals, strategies, underlying mechanisms, as well as whether goals were achieved and if programme management positively contributed to the goal-achievement. In the results section, the goals, strategies and underlying mechanisms deemed most relevant are reported. These are largely represented by the aspects most mentioned by as many different interviewees. Regarding the strategies not focusing on project management and stakeholder management (Section 4.2.3), a categorisation is made of related strategies (*General; Uniformity; Coordination, learning, and pleasant working environment*). This same structure is used for the underlying mechanisms related to these strategies in Section 4.4.3. Interviewees will be referred to with abbreviations (Table 3).

3.4 Ethical considerations

During the interviews it should be clear that the research is independent, since the relationships between public and private parties could be tense in PPPs. The researcher, as an outsider, should not interrupt or worsen these relationships and affect the performance of the project in the programme. Moreover, it should be clear that this research aims to help improve programme management within Rijkswaterstaat, and not for example to very critically reflect on mistakes that are made. Consent is requested for recording, transcribing and publishing interview results. In addition, interviewees will be referred to with their function title, for which consent was also granted (see Appendix D for the consent form). Besides this, interviewees remain anonymous and no sensitive data will be released. Before publishing this study, the interview transcripts are shared with the interviewees with the option to correct for mistakes.

4. Results

Firstly, goals and strategies in SAA will be provided, succeeded by a discussion of the strategy effectiveness. Then, the underlying mechanisms with regards to why strategies were effective are analysed with reference to future effective programme management.

4.1 Programme management goals in the SAA programme

Interviewees were asked which goals were present in the SAA programme. Consequently, they were asked which strategies were used to achieve those goals. It is important to note that not all strategies had a direct, predefined goal. Regarding this, an interviewee argued that everyone is aware of the goals in SAA, so simply asking for those instead of systematically going by the goals in Table 1 would be a more efficient interview strategy. This appeared to be true, meaning that the majority of interviewees were asked openly which goals were present in SAA, and if time allowed reference was made to the literature in Table 1.

It is important to note that the PD stated that there are no explicit goals in the programme besides improving accessibility and liveability. The interviewees were highly aware of these main goals, and mention that all set objectives are aimed to contribute to the overarching goals. For instance, the PM explains the goals are interlinked and argues that together the sub-goals contribute to achieving the main programme goals. In Table 4, the goals mentioned by most different interviewees are summarised.

Goal in SAA	Mentioned by
Accessibility and liveability	PD, SC, BO, PC, PM, IM
Realisation within budget	SC, BO, PC, IM, SM, CM
Realisation within planning	SC, BO, PM, IM, SM
Learning from each other	BO, PC, IM, CM, TM
Predictability towards stakeholders	BO, PC, PM, SM
Coordination	BO, IM, CM, TM
Controllability	BO, PC
Risk management	SM, CM
Safety	IM, TM
Pleasant working environment	PC, TM

Table 4: Most important goals in the SAA programme.

Both project and programme managers mention both relatively many different goals (BO and PC: 7 different goals) and relatively little different goals (SC & PM: 3 different goals). This indicates no clear difference between project and programme managers related to the mentioned goals based on Table 4.

With regards to the goals by Lycett et al. (2004), interviewees could connect all of the eight fundamental programme management goals (Table 1) to a goal in SAA. However, ambiguity exists whether goals in SAA can be directly linked to the goals of Table 1 since not all goals have explicitly and directly been set. In retrospect, the goals '*learning from each other'* (More effective knowledge transfer), '*predictability towards stakeholders'* (More coherent communication), and '*coordination'* (Improved coordination) can be directly linked to the literature. Other goals, e.g. '*realisation within budget'* and '*controllability'* have indirect links, for instance to 'More effective resource utilisation'. It is easier to relate the goals in SAA to the more broad goal categories *efficiency and effectiveness* and *business focus* from Table 1. A general patterns leaning towards *efficiency and effectiveness* is present in the goals of Table 4. The difficulty to directly connect the SAA goals to Table 1 raises the question whether it is relevant in this context to use the specific fundamental programme management goals (see section 5.2).

4.2 Programme management strategies in the SAA programme

Interviewees regularly emphasised an unclear relationship between programme management strategies and their contribution to distinct programme goals. Consequently, the programme management strategies in the SAA programme are presented here without direct connection to the goal they were connected to in the interviews. Firstly, sections 4.2.1 and 4.2.2 present project management and stakeholder management strategies respectively. Then, other more general programme management strategies are discussed (4.2.3).

4.2.1 Project management strategies

Strategies regarding project management in general concern hire companies to centrally arrange project management, and to make the programme phased and thereby controllable. Tables 6, 7, and 8 contain strategies regarding planning management, risk management and cost management strategies.

Strategy	Mentioned by
Sequential project organisation	PD, SM, IM,
Robust planning with two buffer years	PM, SM
Independent project planning: projects in the lead	PC, IM
Clear planning strategy: sufficient planning sessions, 13-week planning	IM
Planning milestones with directors later in time than the milestones you aim for	BO

Table 6: Planning management strategies in SAA.

Strategy	Mentioned by
Managing top 10 risks from programme level to shift risks	PD, PM, IM
Differentiation programme and project risks	PD, PM, PC
Proactive and timely assessment of future risks	SM

Table 7: Risk management strategies in SAA.

Strategy	Mentioned by
Centrally manage budget for unforeseen risks	PD, BO, PM, PC, SM
Create scarcity within projects to create awareness to work within budget	PD, BO
Realistic and constructive cost assessment	PM, CM
More positive than expected tender results remained in the programme	CM

Table 8: Cost management strategies in SAA.

Two explicit strategies regarding quality management in the SAA programme were mentioned. The first entails the use of a Quality Management System, consisting of the developed procedures for all projects. On the programme level, this system is managed by an external party (CM). The second strategy covers working with system engineers, resulting in an overview of objects and the related requirements from all stakeholders. This systems transfers from project to project, by which the system improves (SM). Finally, the last component of project management as mentioned in the Theoretical framework, information management, is not explicitly mentioned by the interviewees.

4.2.2 Stakeholder management strategies

The strategies that were mentioned regarding stakeholder management particularly involved stakeholder engagement, which is step four of the typical stakeholder management process (El-Gohary et al., 2006). The SM also mentioned the stakeholder identification and analysis (Step 1 and 2, El-Gohary et al. (2006)) process which is arranged from the programme level. Tables 9 and 10 provide the most mentioned strategies with respect to communication and collaboration with stakeholders.

Strategy	Mentioned by
Consistent communication on programme level	SC, SM, CM, TM
Online visitors centre	SM, CM
Proactive, open and honest communication	SM

Table 9: Communication strategies in SAA.

Strategy	Mentioned by
Resilient partnerships: specific way of working together with market parties	SC, BO, PM, SM
Uniformity towards market	BO, PC
Working towards goals together	SC, IM

Table 10: Strategies for collaboration with stakeholders in SAA.

As strategies to create support from stakeholders, collaborating with the involved stakeholders and creating 'good will' amongst stakeholders (SC), and holding on to the gained support (PM) are mentioned.

4.2.3 Other programme management strategies

In this section, strategies not directly related to the focus on project management and stakeholder management are presented.

General

Generally, the strategies in the SAA programme together contribute to the main goals, which are accessibility and liveability (PD). On the programme level, many elements are centralised (PD, BO, PC, SM, CM, TM). In the programme, projects are in the lead and autonomous (PM, PC), and the programme strategies are translated into project strategies (e.g. IM). The programme board functions as a central communication body (CM), and in general the market is involved through resilient partnerships (e.g. SM). Resilient partnership is a way of market collaboration, in which resilience, trust and a balance between contract steering and collective reflection are central (Ruijter, 2019). The general programme strategy aims for an open, transparent, predictable, robust, realistic and pragmatic environment (PM, CM), in which not the goals and contracts themselves but rather the application of them matter most (PM). Strategies for a safe working environment concern the creation of a 'safety culture', with for instance safety ambassadors, communication, and knowledge sharing (IM, TM).

Uniformity

Furthermore, uniformity is also frequently mentioned as a strategy. This includes a uniform purchasing strategy (PD), reporting (BO), project management (PD), contract setup (BO, PC), procurement and relationship to the market (BO).

Coordination, learning, and pleasant working environment

Projects are coordinated through re-using standard procedures, transferring people and knowledge towards follow-up projects. Regarding knowledge transfer, Table 11 shows strategies on learning from each other.

Strategy	Mentioned by
Primus inter pares (PIP) structure: collaborations with people from same discipline	BO, SM, CM, TM
Sequential project organisation: transfer people from project to project	BO, PC, IM, TM
Learning from each other and previous mistakes	BO, SM, IM, CM

Table 11: Strategies to learn from each other in SAA.

For the provision of a safe, pleasant, and trusted work environment, the focus was laid on the 'SAA feeling'. This is done through organising employer events, sessions to communicate opinions, and constantly sharing the same message together (PC). Thereby, a working method is developed in which people can develop themselves in a trusted environment (TM).

4.3 Effective strategies

Interviewees were asked whether the programme management strategies were successful twofold. Per mentioned strategy the interviewees were asked whether the goal was achieved by using that strategy. The major share of strategies were effective in achieving their purpose. In some occasions, goals were only partially achieved. However, the interviewees stated that this partial achievement did not affect the success of the strategies. When goals are not completely achieved, this does not indicate an unsuccessful strategy (PM). For instance, the order of the projects has changed, but did not affect the timely realisation of the projects (BO, IM, CM, TM). Additionally, shifting people between projects has not worked out as initially planned, but has still worked (PC, CM).

Secondly, respondents were asked whether they think the programme has contributed to the success of the strategies. Predominantly, the programme (management) had positively contributed to the success of the strategies. Some strategies were purely programme-based. Alternatively, the programme strategies contributed to higher level of goal-achievement compared to the sole use of project management.

Many interviewees stated that the SAA programme is rather unique, since four mega infrastructure projects are realised within budget and time. The next section explains why these programme management strategies have been so successful until now, keeping in mind that the final project is not yet finished.

4.4 Underlying mechanisms of strategy effectiveness

Section 4.4.1 and 4.4.2 discuss project management and stakeholder management respectively, whereas section 4.4.3 explains the mechanisms not directly focusing on these topics. The strategies are presented in separate categories, but their mechanisms are not mutually exclusive. Advice for future programmes is provided based on the underlying mechanisms.

4.4.1 Project management mechanisms

Projects should be as responsible as they can. This can be done through developing scarcity in terms of project budgets (PD, BO). Project managers then feel urged to work within the given budget, resulting in tighter steering and better budget management (PD). With regards to this central management of certain aspects, budget steering works by making the compensation of losses in less optimal circumstances possible. The programme board needed to give permission to use the centrally located budget, improving projects' budget management (BO). This overarching steering and having one budget is the programme's strength (CM) and could be used in future programmes.

The centrally located buffer budget decreases the risk budget, possible through the large project size (PC). A central budget facilitates cost compensation since the money remains at the programme instead of going back to the higher organisation (TM). The central budget consists of the parts of the project risks without a predefined reason (BO, SM). The size of this budget is calculated through chance times effect, which makes you approach risks more seriously (SM). Additionally, shifting risks was therefore also easier in a programme (CM). Furthermore, preventing risks by not being too optimistic about e.g. budget and time in the initial project phases creates predictability (CM). Resilient partnerships also assist in discussing and sharing risks better (SM). According to the IM, the programme's risk management plan (delivery mechanism in Appendix A) helped identifying and combining risks in order to adjust the steering on these. In future programmes risks will increase, so in the case of DBFM-contracts better division of risks between parties is required (SC).

Centrally managing project management aspects creates predictability because the management is done by one organisation (PD). Especially, outsourcing all possible project management elements to one central party creates higher levels of predictability (PD). This predictability creates trust, resulting in more room to operate (PD, SM), which can make the difference between standard and successful programmes (PD).

Coherence from the programme adds to achieving the goal of efficiently working within budget and time (SC). Creating your own buffers and being predictable is important for this (BO). Predictability in time management is created through planning deadlines agreed upon with administrators later in time than the deadlines you work towards. A robust planning is also beneficial to re-allocate resources in the programme (PM). To conclude, autonomous projects with centrally managed aspects on the programme level help to decrease costs and risks, and being coherent and constructive in your planning could help future programmes to effectively be realised within their scope.

4.4.2 Stakeholder management mechanisms

Initially, a stakeholder identification process defines the communication structure and highlights stakeholder-specific issues. This allows for steering towards solving those issues (SM). Continuously communicating about the programme and it's objectives towards stakeholders creates a focus to achieve those. Besides, consistency in communication is easier through a programme since the programme oftentimes involves the same stakeholders. This consistent communication also creates trust (TM).

Short communication lines towards the crucial decision-makers are beneficial. For example, on a certain moment you can rely on the response of the programme board because it is predictable (TM). However, sometimes relationships were tense, for example when discussions occurred about what could be communicated according to the communication standards of Rijkswaterstaat (SM). However, for future programme effectiveness short and direct lines towards the crucial decision-makers in The Hague help significantly (BO, SC).

Collaboration is facilitated through developing a culture in which collaboration is normal, which helps to deliver higher quality project outputs (SC, IM, TM). The BO and TM add that making contact, using a PIP structure to create interlinkages between people and collaborating on the same location improves coordination between people. The key is that people bring 'knowledge and acquaintances' (BO). Collaborating with the stakeholders and keeping the goals in front of you helps to achieve goals in a win-win situation (SC, IM). Being adaptive in reaching these goals together with all stakeholders in resilient partnerships contributes to achieving your goals. The SC highlights the large added value of facilitating an undisturbed building process through this collaboration. In future programmes, all stakeholders should be taken seriously (PM) and everyone should be left to their own devices (PC). Then, to be effective you need to communicate consistently and uniformly towards actors (SC, BO), and focus on main goals rather than derived sub-goals together with your stakeholders (IM). To summarise, high quality communication and collaboration, and balancing each other's interests (SM), can lead to more effective programmes in the future.

4.4.3 Other mechanisms
General

In general, efficiency, predictability and teamwork are mutually dependent interlinked goals and strategies (PM). The PC adds that programmes can arrange more by being more efficient, and the PM states that programme efficiency is about more that the sum of it's parts. The PM also adds that room to operate (i.e. flexibility) allows for the achievement of goals. Managing to maintain an undisrupted building process can also create space to operate and added value, but requires lots of trust in each other (SC). To achieve future programme effectiveness, doing certain things together is mentioned as a success factor, for instance centrally purchasing knowledge (PC). The programme then arranges that everyone works together, and should be a result of the group process to which people can contribute

(PM, IM). The PD adds that you need to be clear about the programme type in order to align the programme organisation with the optimal manner to achieve your goals. However, programme management should not be a goal by itself (PD). Furthermore, effective programmes should be tailored to their context (PD). Additionally, programmes in PPPs are about how you experience the contract and to offer each other space for the contract (SC, PM). PPP programmes can be effective if you concede things to the other parties. A programme is not required for this, but supports consistency and legitimacy to market parties which know who they work with (CM). An example is that the same contract type facilitates collaboration with market parties (PD).

Uniformity

Uniformity is a key word in many underlying mechanisms of efficient programme management strategies. Uniformity ensures that private parties know what they can expect from the SAA programme. This creates an environment in which market parties can work more efficiently and predictable, and thereby lower the costs and risks in the tender procedure (PD, BO, SM). Space to operate is developed through proper and uniform project definition (PM, SM) and moving in line with other parties when possible, so you can take another direction when necessary (PM). Operation space is also created through resilient partnerships (PM, PC) by taking a uniform way of for example working and talking with other parties (PC). Uniformity also assists coordination. For instance, coordination helps not to overcharge the market (BO, PC) and offers more efficiency (PC). Thus, generally uniformity is crucial for the effectiveness of many aspects in future programmes.

Coordination, learning and pleasant working environment

The programme benefits from the knowledge that remains in the programme (PC, TM), as well as the discovered best practices (SM). The CM states that learning from each other is facilitated by standard frameworks, procedures, etc. developed and improved throughout the sequential projects (i.e. uniform approach, BO, PC, TM). The sequential planning of projects helps to keep people and knowledge closer to the programme, because staff that enjoyed the good working conditions can move on to the next project (BO). This interesting working environment also helps keeping people in the programme and locating them in the right position for personal development (TM), and gets the best out of people (PC). People liked to be part of the programme (PM), and together with the large size and image of the programme it was not difficult to find the required skills (PM, PC, SM). An additional benefit of the size and status of the programme is that the programme is taken serious by Rijkswaterstaat. An enjoyable working environment is indicated essential for future programme success (SM, PD, TM, BO). It is about the work atmosphere, the way people treat each other, mutual trust and the organisation of occasional trips like a beach party (SM). The TM highlights the importance of being able to say and talk about things and act decisively on those (TM). Finally, freedom as a person to do your job is essential (PD), and the natural coordination and learning that occur when people work in the same location (BO). Thus, in future programmes, a sequential project planning, developing a learning environment, and efficiently employing staff in order to coordinate people better could help to achieve main programme goals.

5. Conclusion and discussion

5.1 Conclusion

The aim of this research was to contribute to effective programme management in the context of public-private partnership infrastructure programmes. In the context of the Schiphol-Amsterdam-Almere programme, the study investigated what explains the effectiveness of programme management strategies. It was found that a diverse set of strategies is utilised, which together contribute to achieving the overarching programme goals accessibility and liveability (sub-question 1). The majority of the strategies was effective, whereas a small share is partly effective. In the case of partial strategy effectiveness, this did not affect successful outcomes (sub-question 2). To answer the third sub-question, mechanisms that explain the (partial) effectiveness of these strategies were found. In project management, centrally managing aspects like budget and risks, resulting in predictability, trust and room to operate is important in particular. Regarding stakeholder management, mechanisms especially revolve around consistent and short communication lines, and facilitating collaboration to collectively achieve goals. Moreover, uniformity aids learning from each other (among other thing), and the creation of a pleasant working environment allowing for better coordination for instance. The collective contribution of the answers on the sub-questions combines towards an answer on the main research question to discover what explains the effectiveness of programme management strategies in the Schiphol-Amsterdam-Almere programme. This effectiveness results from a combination of strategies and their functioning, which develop outcomes that contribute to the achievement of the overarching programme goals. Since all strategies were (partially) effective, future programme managers in PPP infrastructure programmes can learn from and adopt the mechanisms that lead to effective strategies and successful programmes (sub-question 4).

5.2 Discussion of the results and recommendations for future research

This research focused on discovering underlying mechanisms to explain strategy effectiveness. The strategies were linked to their goals in order to measure effectiveness. However, due to the focus on underlying mechanisms, less attention was drawn to thoroughly analysing goals and strategies themselves in interviews. Therefore, sometimes ambiguity existed between goals and strategies. The goals were linked to the fundamental programme management goals by Lycett et al. (2004) in this study, but lack of time in interviews oftentimes caused less focus on connecting these to practice. Similarly, the strategies related to goals were discussed, but a systematic discussion of strategies in relation to Appendix A, project management strategies and stakeholder management strategies was not performed. Nevertheless, project management strategies and stakeholder management strategies relating to the steps of stakeholder management (El-Gohary et al., 2006) were clearly present. It is however questionable whether the goals in Table 1 are relevant for the specific goals of PPP infrastructure programmes. Unless the identification of goals was sometimes difficult, it definitely allowed for assessment of effective strategies and a more logical interview structure.

Structuring the interviews was initially difficult, but progressing through the interviews they became more structured. Awareness was gained that finishing the research was doable when the pieces of the puzzle started to fall in the right place during the data collection process. Both experiences positively contributed to the quality of the research.

In future research, the more recent measurement method (Shao et al., 2012) could be used to measure programme management strategy effectiveness. More focus could be awarded to goals and strategies, which can possibly decrease the ambiguity between those. Further, alternative perspectives to strategy effectiveness, e.g. that of contractors, involved governments or other programme employees, could offer insights that can be compared to the results of this study (i.e. whether the effectiveness is experienced similarly elsewhere). Interesting insights could also be found when the SAA programme is finished.

Instead of measuring programme effectiveness with general success factors, this research developed a method of diving deeper into strategy effectiveness in specific contexts. This research method can be adjusted in order to expand the knowledge on which strategies are effective for programme management in various contexts. Future programme management practitioners can use the information gathered of this and future research to improve upon their practices to contribute more effective programmes.

Acknowledgements

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7. Appendices

Appendix A: Programme management strategies and their delivery mechanisms

Programme management strategy	What the strategy covers	Delivery mechanism
Resource management	Resource to be consumed by the programme. Finances, people, systems, accommodation, facilities and specialisms will all be covered by this strategy	Resource management plan
Monitoring and control	How the programme will monitor progress in terms of expected and actual delivery of outputs, outcomes and key milestones	Programme plan
Information management	How programme information will be catalogued, filed, stored and retrieved, and how the programme will create and manage information	Information management plan
Quality and assurance management	How the delivery of quality activities will be incorporated into the management and delivery of the programme	Quality and assurance plan
Risk management	How the programme will establish the context in which risks will be identified and assessed, and responses planned and implemented	Risk register
Issue management	How issues will be managed consistently across the programme and how any resulting changes will be managed	Issue register
Stakeholder engagement	Who the stakeholders are, what their interests and influences are likely to be, and how the programme will engage with them	Stakeholder profiles and programme communications plan
Benefits management	The delivery framework for identifying, prioritising and achieving benefits	Benefit profiles and benefits realisation plan

Source: (BMP, 2011)

Appendix B: Interview guide

Algemeen:

- Doorvragen is belangrijk. Zolang het maar binnen de scope van het interview blijft.
- Actieve houding: respondent moet het gevoel hebben dat er geluisterd wordt. Knikken en bijvoorbeeld ja of nee antwoorden zodat er een goede flow in het gesprek blijft. Vooral bij online interviews zodat het niet voelt alsof ze tegen een scherm praten.
- Zo min mogelijk de respondent onderbreken, behalve wanneer dat nodig is om binnen de scope van het interview te blijven.
- Eerst voorstellen van de interviewer en vragen naar respondent, om een goede sfeer te creëren.

Introductie

- Ten eerste wil ik beginnen met u bedanken voor uw tijd en aandacht voor dit interview. Dit interview zal ongeveer een uur duren. Ik doe onderzoek voor mijn Bachelor Thesis om mijn bacheloropleiding Spatial Planning and Design af te ronden aan de Rijksuniversiteit Groningen. Uw antwoorden zullen bijdragen aan mijn onderzoek, waarmee ik probeer uit te vinden wat de toegevoegde waarde van programmamanagement is in het SAA programma door te kijken naar doelen, strategieën en uitkomsten. Ik kijk dus naar de effectiviteit van programmamanagement t.o.v. het projectmanagement, en daarmee hoop ik bij te dragen aan de ontwikkeling van programmamanagement bij Rijkswaterstaat.
- Ik heb dit onderwerp bedacht omdat ik weginfrastructuur ontzettend interessant vind, en vooral infrastructuurnetwerken, en zo ben ik uitgekomen bij het managen daarvan op programmaniveau.
- **Consent formulier:** aanreiken en doornemen, vooral vragen naar opname en verwijzing.
- Dit interview heeft een semigestructureerd format. U mag daarom vrij vertellen wat u kwijt wilt over het onderwerp. Het kan daardoor ook voorkomen dat ik zal ingrijpen om terug te gaan naar het onderwerp en de interviewvragen.

Introductie(vragen)

- Wat is uw huidige functie en op welke projecten bent u momenteel werkzaam? Kunt u daar kort iets over vertellen?
- Bent u bij andere projecten van het SAA programma werkzaam/betrokken geweest? Zo ja, in wat voor functie?

Kernvragen

Blok 1: doelen

- Wat waren de doelen van het programmamanagement per project? Lijstje bij langs gaan.
- Zijn deze doelen enkel gedefinieerd op het programmaniveau? Of ook op projectniveau, en hoe zijn deze dan op het projectniveau verwerkt? Zo ja, waarom, zo nee, waarom niet?
- Zijn er naast het lijstje ook andere doelen gesteld?

Blok 2: strategieën en uitkomsten

- **Per doel:** welke strategieën zijn er gebruikt om het doel te bereiken? Focus op omgevingsmanagement en projectbeheersing, elementen aangeven.
- Was deze strategie gedefinieerd op projectniveau of programmaniveau? Kunt u uitleggen waarom?
- Wat waren de uitkomsten van het gebruik van deze strategieën? Is het doel behaald, of gaat het doel behaald worden?
- Zo ja, hoe heeft deze strategie geleid tot het gestelde doel? Zo nee, in hoeverre is het doel behaald? En waarom is het doel niet volledig behaald?
- Zit er meerwaarde in het feit dat deze strategie is gebruikt vanaf het programmaniveau t.o.v. het projectniveau? Heeft deze strategie bijgedragen aan het halen van de doelen / uitkomsten?

Blok 3: reflectie op programmamanagement binnen PPS

- Heeft u tips/suggesties/aanbevelingen voor toekomstig programmamanagement binnen Rijkswaterstaat?
- Wat is de invloed van het feit dat het SAA programma volledig uit PPS-contracten bestaat?

Afsluitende vragen

- Heeft u tot slot nog vragen of opmerkingen over het onderwerp of het interview?
- Vindt u naar aanleiding van dit interview dat ik nog een specifiek iemand moet interviewen?
- Herhaling consent formulier.
- Zou ik u mogen contacteren in het geval ik eventuele vervolgvragen heb, of vragen over de gegeven antwoorden bijvoorbeeld? U kunt mij altijd contacteren bij eventuele vragen.
- Wilt u een eindversie van de thesis ontvangen?
- Bedankt voor uw deelname aan dit onderzoek, en nogmaals bedankt voor uw tijd en aandacht!

Appendix C: Coding scheme

Category	Codes
Goals	Goal: Improved coordination Goal: Improved dependency management Goal: More effective resource utilisation Goal: More effective knowledge transfer Goal: Greater senior management 'visibility' Goal: More coherent communication Goal: Improved project definition Goal: Better alignment with business drivers, goals and strategy Goal: Other
Strategies	Strategy: Time management Strategy: Cost management Strategy: Risk management Strategy: Quality management Strategy: Information management Strategy: Stakeholder identification Strategy: Stakeholder analysis Strategy: Stakeholder issues Strategy: Stakeholder engagement Strategy: Other
Underlying mechanisms	Underlying mechanism mentioned
Effectiveness: goal-achievement	Yes Partially No
Effectiveness: added value programme	Yes Partially No
Advice future programmes	Advice mentioned

Appendix D: Consent form

Overeenkomst voor deelname - Research Ethics Committee (REC)

aan onderzoeksproject (bachelor scriptie) voor BSc Spatial Planning and Design:

Titel: Programme management within public-private partnerships: an analysis of the Schiphol-Amsterdam-Almere programme

Het doel van dit onderzoek is om uit te vinden wat de toegevoegde waarde is van programmamanagement in het Schiphol-Amsterdam-Almere programma. Hiervoor wordt er gekeken naar verschillende doelen, strategieën en uitkomsten van het programmamanagement.

- Ik begrijp waar dit onderzoek over gaat.
- Ik heb de mogelijkheid gehad om vragen te stellen over dit onderzoeksproject. Ik ben tevreden met de antwoorden die ik heb gekregen.
- Ik begrijp dat deelname aan dit onderzoek vrijwillig is.
- Ik begrijp dat ik het recht heb om mij terug te trekken uit dit onderzoek tot het moment dat het onderzoek is gepubliceerd, en dat ik het recht heb om beantwoording van elk van de vragen te weigeren.
- Ik begrijp dat mijn deelname aan dit onderzoek vertrouwelijk is en dat er zonder mijn toestemming geen materiaal wordt gepubliceerd dat mij kan identificeren.
- Ik begrijp dat deze data die voortkomt uit het interview ook gebruikt kan worden in artikelen, hoofdstukken van boeken, gepubliceerd en ongepubliceerd werk en in presentaties.
- Ik begrijp dat alle informatie die door mij verstrekt is vertrouwelijk blijft op een apparaat dat met wachtwoord beveiligd is.

De volgende vragen alstublieft met JA of NEE invullen:

Ik ga ermee akkoord dat de audio van mijn interview wordt opgenomen

voor het verwerken en coderen van de data uit het interview   JA / NEE

Ik wil anoniem blijven in dit onderzoek   JA / NEE

Indien NEE
Mijn functietitel mag gebruikt worden in dit onderzoek

(bijvoorbeeld 'projectmanager')   JA / NEE

Indien JA

Een pseudoniem naar mijn keuze mag worden gebruikt in dit onderzoek

(bijvoorbeeld 'respondent + nummer')   JA / NEE

"Ik ga akkoord met de bovenstaande voorwaarden voor deelname aan dit interview."

Naam / handtekening deelnemer interview: ……………………………………………………………………

Datum: ……

E-mail: ……

(Indien het gewenst is een kopie van de transcriptie van het interview te ontvangen zodat u de mogelijk heeft de data te controleren op feitelijke onjuistheden, en indien nodig aan te passen.)

"Ik verklaar dat ik me aan de op dit formulier aangegeven wensen van de deelnemer houd, en ik geen enkele schade aanricht aan de deelnemer gedurende dit onderzoek."

Naam / handtekening onderzoeker:……………………………………………………………………………………

Datum: ……